Space Weather Forecast

Issued on Friday 6 December 2024 at 00:30 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Low to Moderate activity. Slight chance G1 Minor Storms day 4 (09 Dec).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with three Moderate-class flares, the strongest of which was likely from over one of the sunspot regions that have moved over southwest limb. There are eight sunspot regions on the Earth-facing Sun, however these are generally small and simple. The most notable are potentially the two in the southeast. This is despite their relatively simple bipolar appearance.

No Earth-directed coronal mass ejections (CMEs) were observed, although a couple did occur off the Earth-Sun line. There are also a number of filaments, or lines of plasma, on the visible disc. This includes a large north-south feature in the southeast. These will need to be monitored for any potential lift-off as these can also be the source of Moderate flares and CMEs.

Solar Wind / Geomagnetic Activity: Recent slightly elevated solar winds eased with mainly background slow wind conditions returning. Solar wind speeds were declined from 450 km/s to around or just below 400 km/s. Total Interplanetary Magnetic Field (IMF), Bt, was weak, while the north-south component was also weak and favoured a positive (northward) orientation. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rather of energetic particles (High energy protons) persisted at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with a chance of isolated Moderate flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Background winds and Quiet geomagnetic activity is expected until the arrival of the next spell of faster solar winds from a coronal hole, most likely either very late on day 3 or more likely on day 4 (08-09 Dec). Geomagnetic activity is likely to become Unsettled to Active with a slight chance of G1 Minor Storms.

Energetic Particles / Solar Radiation: The count rather of energetic particles (High energy protons) is expected to persist at background with only a very slight chance of rising given any notable flare activity.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	50	50	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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